

## **REMARKS**

Reconsideration and allowance of the claims are requested in view of the above amendments and the following remarks. Claims 1, 11 and 12 have been amended. Support for the claim amendments may be found in the specification and claims as originally filed. For example, support for the claim amendments may be found in the present specification at least at page 4, lines 4-5 and page 6, lines 6-21. No new matter has been added.

Upon entry of this amendment, claims 1-17 are pending with claims 1 and 12 being independent.

### **1. Office Action Mailed to Incorrect Address/Addressee**

The present Office Action was erroneously mailed to Dykema Gossett PLLC in Bloomfield Hills, MI.

Contrary to the mailing address listed on the current Office Action, a change of power of attorney was filed in the present application on March 27, 2008, revoking all previous powers of attorney given for the present application to Dykema Gossett PLLC, and appointing practitioners associated with customer number 22971 (i.e., practitioners at Microsoft Corporation). A statement under 37 CFR 3.73(b) was submitted with the change of power of attorney. **Therefore, applicants respectfully request that all future correspondence from the Office regarding the present application be sent to the correspondence address associated with customer number 22971:**

**Microsoft Corporation  
One Microsoft Way  
Redmond, WA 98052-6399**

Applicants representative, Mr. Sung Kim, placed telephone calls with Examiner Robert Carter and Supervisory Patent Examiner Sumati Lefkowitz, both of Art Unit 2629, on June 22-23, 2009, to bring this error to the attention of the Office for correction.

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**2. Rejections Under 35 U.S.C. §112**

The Office Action rejects claims 1 and 12 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants respectfully traverse this rejection for at least the following reasons.

Applicants disagree with the rejection of claims 1 and 12 under 35 U.S.C. §112, second paragraph. However, solely for purposes of economic prosecution, claims 1 and 12 have been amended to remove the recited elements at issue, specifically: “wherein the tapered waveguide has a tapered cross-section in a direction of propagation of the injected light”.

For at least the above reasons, reconsideration and withdrawal of the rejection of claims 1 and 12 under 35 U.S.C. §112 are respectfully requested.

**3. Rejections Under 35 U.S.C. §102**

The Office Action rejects claims 1-2, 5 and 7-11 under 35 U.S.C. §102(b) as being anticipated by Irwin (4,978,952). Applicants respectfully traverse this rejection for at least the following reasons.

Irwin discloses sets of three LEDs 25. Each of these diodes emits light of a different color, i.e., red, green, yellow or blue. The diode sets are arranged horizontally and there is one set for each horizontal row of picture elements (pixels) of the display (see col. 5, lines 3-8). Irwin also discloses that each color LED is fed from the corresponding color signal and thus the LEDs are energized from left to right at the horizontal scan rate to emit the color dictated by the color signal and horizontal sweep signal. In some instances, the color emitted is a color achieved by combining the outputs of two or all three of the diodes at intensities determined by the chrominance signals (see col. 5, lines 26-32).

However, Irwin falls short of teaching or suggesting a waveguide comprising an extended section for mixing light of different colors from a light source before reaching a display. At most, Irwin teaches emitting a color achieved by combining the outputs of two or three diodes, but does not specify or suggest any details on how or where the combining would be achieved.

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Moreover, Irwin fails to teach or suggest an extended section of a waveguide that is folded behind the display and comprises one or more prisms. As discussed in the specification of the present application, one benefit of folding the extended section of the waveguide is so that the extra length of the extended section does not create an unacceptable change in form factor (see page 6, lines 18-21).

As a result, Irwin fails to teach or suggest at least the following elements of independent claim 1 as amended (emphasis added):

1. An illuminator system for a flat-panel display, comprising:  
a tapered waveguide co-extensive with the display,  
a plurality of light sources each arranged to inject light at a different angle into an edge of the waveguide, wherein light injected from each of the light sources emerges at different positions on a face of the waveguide based on the injection angle corresponding to each light source, and  
means for scanning the emerging light associated with a light source onto a portion of the display, wherein a position of the portion of the display corresponds to the position on the face of the waveguide at which the light emerges,  
wherein the waveguide comprises an extended section for mixing light of different colors from a light source before reaching the display, the extended section folded behind the display and comprising one or more prisms.

Therefore, since Irwin fails to disclose, or even suggest, all of the elements of independent claim 1, this claim is allowable.

Claims 2, 5 and 7-11 depend from claim 1. As discussed above, claim 1 is allowable. For at least this reason, and the features recited therein, claims 2, 5 and 7-11 are also allowable.

Additionally, in regards to claim 11, Irwin fails to teach or suggest a waveguide that is optically tapered by including internal variations in refractive index therein. As discussed in the present specification (emphasis added):

The waveguide may be literally tapered, i.e. so that it has a cross-section, in the direction of propagation through it before emergence at the face, that tapers down; or it may achieve the

same effect by "optical tapering", e.g. using variation in refractive index. (see page 4, lines 1-5).

For at least the above reasons, reconsideration and withdrawal of the rejection of claims 1-2, 5 and 7-11 under 35 U.S.C. §102(b) are respectfully requested.

#### **4. Rejections Under 35 U.S.C. §103**

##### **A. Rejections Based on Irwin and Sakaguchi et al.**

The Office Action rejects claims 12-13 and 16 under 35 U.S.C. §103(a) as being unpatentable over Irwin in view of Sakaguchi et al. (6,448,951). Applicants respectfully traverse this rejection for at least the following reasons.

As discussed above, Irwin fails to teach or suggest the features of a waveguide comprising an extended section for mixing light of different colors from a light source before reaching a display, and that the extended section of the waveguide is folded behind the display and comprises one or more prisms. Sakaguchi et al. fails to cure this defect.

Sakaguchi et al. is primarily cited by the Office Action for its teaching of ON/OFF states of individual backlight sections that are independently controlled by a back light driver. Basically, the backlight sections are sequentially turned on or off from the top to the bottom of a TFT LCD array (see col. 5, lines 48-53). However, Sakaguchi et al. fails to teach or suggest the features missing from Irwin discussed above.

As a result, Irwin and Sakaguchi et al. fail to teach or suggest at least the following elements of independent claim 12 as amended (emphasis added):

12. A method for illuminating a flat-panel display, comprising:
  - a) injecting light from a light source of a plurality of light sources at an injection angle into an edge of a tapered waveguide that is co-extensive with the display, wherein light of different colors from the light source is mixed in an extended section of the waveguide folded behind the display and comprising one or more prisms, wherein the injected light emerges from a position on a face of the waveguide based on the injection angle of the light source;

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- b) scanning light emerging from the position on the face of the waveguide onto a portion of the display, wherein a position of the portion of the display corresponds to the position on the face of the waveguide;
- c) switching off the light source; and
- d) sequentially repeating steps a) - c) for one or more other light sources of the plurality of light sources, wherein each of the plurality of light sources corresponds to a different injection angle, so that different portions of the display are illuminated in turn as each light source injects light into the edge of the waveguide.

Therefore, since Irwin and Sakaguchi et al., alone or in combination, fail to disclose or suggest all of the elements of independent claim 12, this claim is allowable.

Claims 13 and 16 depend from claim 12. As discussed above, claim 12 is allowable. For at least this reason, and the additional features recited therein, claims 13 and 16 are also allowable.

For at least the reasons above, reconsideration and withdrawal of the rejection of claims 12-13 and 16 under 35 U.S.C. §103(a) are respectfully requested.

#### **B. Rejections Based on Irwin and Wang**

The Office Action rejects claim 3 under 35 U.S.C. §103(a) as being unpatentable over Irwin in view of Wang (6,704,071). Applicants respectfully traverse this rejection for at least the following reasons.

As discussed above, Irwin fails to disclose or suggest all of the elements of independent claim 1. Wang fails to cure this defect.

Wang is primarily cited by the Office Action for its teaching of a light source 23 that emits a light that may be reflected by a reflecting mirror 24 (see col. 3, lines 8-15; Figure 2). However, Wang fails to teach or suggest the features missing from Irwin discussed above.

Therefore, since Irwin and Wang, alone or in combination, fail to disclose or suggest all of the elements of independent claim 1, this claim is allowable.

Claim 3 depends from claim 1. As discussed above, claim 1 is allowable. For at least

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this reason, and the additional features recited therein, claim 3 is also allowable.

For at least the reasons above, reconsideration and withdrawal of the rejection of claim 3 under 35 U.S.C. §103(a) are respectfully requested.

**C. Rejections Based on Irwin and Nauta et al.**

The Office Action rejects claim 4 under 35 U.S.C. §103(a) as being unpatentable over Irwin in view of Nauta et al. (2002/0030772). Applicants respectfully traverse this rejection for at least the following reasons.

As discussed above, Irwin fails to disclose or suggest all of the elements of independent claim 1. Nauta et al. fails to cure this defect.

Nauta et al. is primarily cited by the Office Action for its teaching that light from a lamp 12 may be coupled into a waveguide 15 via a coupling-in means 13 that may be a wedge-shaped optical waveguide that limits the angle of the entering beam to 15 degrees with respect to faces 18, 19 of the waveguide 15 (see paragraph 30; Figure 1). However, Nauta et al. fails to teach or suggest the features missing from Irwin discussed above.

Therefore, since Irwin and Nauta et al., alone or in combination, fail to disclose or suggest all of the elements of independent claim 1, this claim is allowable.

Claim 4 depends from claim 1. As discussed above, claim 1 is allowable. For at least this reason, and the additional features recited therein, claim 4 is also allowable.

For at least the reasons above, reconsideration and withdrawal of the rejection of claim 4 under 35 U.S.C. §103(a) are respectfully requested.

**D. Rejections Based on Irwin and Higuchi et al.**

The Office Action rejects claim 6 under 35 U.S.C. §103(a) as being unpatentable over Irwin in view of Higuchi et al. (5,887,964). Applicants respectfully traverse this rejection for at least the following reasons.

As discussed above, Irwin fails to disclose or suggest all of the elements of independent claim 1. Higuchi et al. fails to cure this defect.

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Higuchi et al. is primarily cited by the Office Action for its teaching that a typical beam representing directional light emitted from the exiting surface of the light guide plate may be led to the frontal direction inside the prism sheet by properly designing a prism vertical angle on the prism surfaces formed on the inside surface (see col. 8, lines 31-36). However, Higuchi et al. fails to teach or suggest the features missing from Irwin discussed above.

Therefore, since Irwin and Higuchi et al., alone or in combination, fail to disclose or suggest all of the elements of independent claim 1, this claim is allowable.

Claim 6 depends from claim 1. As discussed above, claim 1 is allowable. For at least this reason, and the additional features recited therein, claim 6 is also allowable.

For at least the reasons above, reconsideration and withdrawal of the rejection of claim 6 under 35 U.S.C. §103(a) are respectfully requested.

#### **E. Rejections Based on Irwin, Sakaguchi et al. and Wang**

The Office Action rejects claim 14 under 35 U.S.C. §103(a) as being unpatentable over Irwin in view of Sakaguchi et al. and further in view of Wang. Applicants respectfully traverse this rejection for at least the following reasons.

As discussed above, Irwin and Sakaguchi et al. fail to disclose or suggest all of the elements of independent claim 12. Wang fails to cure this defect.

Wang is primarily cited by the Office Action for its teaching of a light source 23 that emits a light that may be reflected by a reflecting mirror 24 (see col. 3, lines 8-15; Figure 2). However, Wang fails to teach or suggest the features missing from Irwin and Sakaguchi et al. discussed above.

Therefore, since Irwin, Sakaguchi et al. and Wang, alone or in combination, fail to disclose or suggest all of the elements of independent claim 12, this claim is allowable.

Claim 14 depends from claim 12. As discussed above, claim 12 is allowable. For at least this reason, and the additional features recited therein, claim 14 is also allowable.

For at least the reasons above, reconsideration and withdrawal of the rejection of claim 14 under 35 U.S.C. §103(a) are respectfully requested.

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**F. Rejections Based on Irwin, Sakaguchi et al. and Nauta et al.**

The Office Action rejects claim 15 under 35 U.S.C. §103(a) as being unpatentable over Irwin in view of Sakaguchi et al. and further in view of Nauta et al. Applicants respectfully traverse this rejection for at least the following reasons.

As discussed above, Irwin and Sakaguchi et al. fail to disclose or suggest all of the elements of independent claim 12. Nauta et al. fails to cure this defect.

Nauta et al. is primarily cited by the Office Action for its teaching that light from a lamp 12 may be coupled into a waveguide 15 via a coupling-in means 13 that may be a wedge-shaped optical waveguide that limits the angle of the entering beam to 15 degrees with respect to faces 18, 19 of the waveguide 15 (see paragraph 30; Figure 1). However, Nauta et al. fails to teach or suggest the features missing from Irwin and Sakaguchi et al. discussed above.

Therefore, since Irwin, Sakaguchi et al. and Nauta et al., alone or in combination, fail to disclose or suggest all of the elements of independent claim 12, this claim is allowable.

Claim 15 depends from claim 12. As discussed above, claim 12 is allowable. For at least this reason, and the additional features recited therein, claim 15 is also allowable.

For at least the reasons above, reconsideration and withdrawal of the rejection of claim 15 under 35 U.S.C. §103(a) are respectfully requested.

**G. Rejections Based on Irwin, Sakaguchi et al. and Higuchi et al.**

The Office Action rejects claim 17 under 35 U.S.C. §103(a) as being unpatentable over Irwin in view of Sakaguchi et al. and further in view of Higuchi et al. Applicants respectfully traverse this rejection for at least the following reasons.

As discussed above, Irwin and Sakaguchi et al. fail to disclose or suggest all of the elements of independent claim 12. Higuchi et al. fails to cure this defect.

Higuchi et al. is primarily cited by the Office Action for its teaching that a typical beam representing directional light emitted from the exiting surface of the light guide plate may be led to the frontal direction inside the prism sheet by properly designing a prism vertical angle on the

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prism surfaces formed on the inside surface (see col. 8, lines 31-36). However, Higuchi et al. fails to teach or suggest the features missing from Irwin and Sakaguchi et al. discussed above.

Therefore, since Irwin, Sakaguchi et al. and Higuchi et al., alone or in combination, fail to disclose or suggest all of the elements of independent claim 12, this claim is allowable.

Claim 17 depends from claim 12. As discussed above, claim 12 is allowable. For at least this reason, and the additional features recited therein, claim 17 is also allowable.

For at least the reasons above, reconsideration and withdrawal of the rejection of claim 17 under 35 U.S.C. §103(a) are respectfully requested.

## **5. Conclusion**

Accordingly, in view of the above amendment and remarks it is submitted that the claims are patentably distinct over the cited art and that all the rejections to the claims have been overcome. Reconsideration and reexamination of the present application is requested. Based on the foregoing, applicants respectfully request that the pending claims be allowed, and that a timely Notice of Allowance be issued in this case. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the applicants' attorney at the telephone number listed below.

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If this response is not considered timely filed and if a request for an extension of time is otherwise absent, applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee that is not covered by an enclosed check please charge any deficiency to Deposit Account No. 50-0463.

Respectfully submitted,  
Microsoft Corporation

Date: July 1, 2009

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**CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR 1.8(a)]**

I hereby certify that this correspondence is being electronically deposited with the USPTO via EFS-Web on the date shown below:

July 1, 2009  
Date

/Noemi Tovar/  
Noemi Tovar

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